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From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>
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Ham-Ant Digest Tue, 8 Nov 94 Volume 94 : Issue 370

Today's Topics:

Need Info:Multi Band Dipole
 swr & xmission lines
 Towers As Radiators

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We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Tue, 8 Nov 1994 01:20:25 GMT
From: greg@core.rose.hp.com (Greg Dolkas)
Subject: Need Info:Multi Band Dipole

TEIXEIRA (teixeira@ccnet.com) wrote:

: Back in my novice days I built a multi band dipole. The antenna was a 1/2
: wave dipole with a seperate wire for 40m,15m & 10m. The swr on 40 was 1.5
: but it was above 3.0 on 15 & 10. I never could get it down. Now my
: neighbor who is a new Ham wants to use this design. Any info on tuning
: this beast. Does it require a tuner? It worked excellent on 40M.

Hummm... With my recent upgrade to General came the need for a new antenna,
and a multi-band dipole is what I built. 3 dipoles each off the same feed,
all running in parallel to each other. The wires were spaced every 18" or so
with wooden popsicle sticks; spacing is about 1.5". The dipole wires are
cut for 40m, 20m, and 10m, and I get good results on 40, 20, 15, 10, and 6.
SWR is <1.5:1 on 40/20/6 and most of 10. 15 is about 2:1 or so, but the tuner
built into my radio (Yaesu 767GX) takes care of it. 10m is so wide that I
can't cover it all, but it's fine in the novice subband, and again the tuner
makes the high end (FM subband) ok.

The wires are 14 gauge stranded house wire (insulated). I cut them about a foot longer than $468/f$ would indicate, then trimmed, starting with the 40m band. Covering 40 & 15 is a compromise, since the end-effects of the wire make it too short on 15 if it's ok on 40. 6 meters ends up being the 7th harmonic of 40. It basically came for free - I didn't tune for it. I expect that some of the apparently good performance is due to the coax (65' RG-8M) absorbing most of the reflected energy :-).

It's an easy antenna to build - go for it!

Greg KD6KGW

Date: 7 Nov 1994 21:13:35 GMT
From: Cecil_A_Moore@ccm.ch.intel.com
Subject: swr & xmission lines

In article <39e641\$i09@wrdis02.robins.af.mil>,
Larry CONTRACTOR Keith Mr. <lakeith@robins.af.mil> wrote:
>SODERMAN.WALTER (soderman@ewirb-wr) wrote:
>: does a balanced feeder provide lower swr naturally, or is it just easier to
>: tune for a lower swr so that it "looks" better to the xcvr?
>
>Neither..

One can make an argument that a balanced feeder does provide lower SWR "naturally". 50 ohm coax will "match" only between 5 ohms and 500 ohms with an SWR of 10:1 or less. 450 ohm ladder-line will "match" anything between 45 ohms and 4500 ohms with an SWR of 10:1 or less. 45-4500 ohms is the "natural" range one would expect from resonant half-wave _and_ non-resonant dipoles (avoiding anti-resonance).

In addition, a 10:1 SWR on 100 ft of RG-8 on 10m results in about 4db (58%) of transmitted power loss in the coax while a 10:1 SWR on 100 ft of ladder-line on 10m results in only about 0.8 db (10%) of transmitted power loss. One will radiate twice as much power using ladder-line under SWR=10:1 conditions. RG-58 is even worse.

--
73, Cecil, KG7BK, OOTC (All my own personal fuzzy logic, not Intel's)

Date: 7 Nov 1994 22:20:25 GMT
From: galen@picea.CNR.ColoState.EDU (Galen Watts)
Subject: Towers As Radiators

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>Bill Standerfer (bills@lvld.hp.com) wrote:
>: I'm about to put up a Rohn 20 tower which will be used as a vertical for 80M.
>: However, I've found no references that discuss the details of the base
>: structure,    ...
>: My current thought is to use a standard concrete base with a Rohn tilt base.
>: I expect to insulate the base and tower ...
>
>Rather than going to all the trouble to insulate the base, why not
>ground the base to a good radial system and connect the coax via a gamma
>match?  You will need the radial system anyway to get good antenna
>efficiency, and the gamma match can be tuned to compensate the driving
>impedance if the antenna is not resonant.
>AL N1AL
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      BEAM
Wire   |
       \|>-----|
        |         X
          X
          X
          X
Wire--> |         X <Tower, You'll need 35 feet min for 80m
        |         X
        |         X
        |         X
        |         X
Feed Here>|         X           Ground Radial
            X               \
-----X-----\

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Galen, KF0YJ
